responding percentage of absolute alcohol. This he states is due to their acid properties.

Malt beverages, as ales and beers, he states, also have a retarding influence on salivary and pancreatic digestion due to their acidity but it is less marked than it is in the wines. Both of the above tables show that some of the ales and beers are decidedly less toxic than the wines. Some of them, however, were as poisonous as the wines in the experiments where young were produced, but in the 10–30 minutes experiment on acute toxicity only Bass's ale equaled the toxicity of any of the wines. Its toxicity was the highest of all the malt beverages but it did not exceed the lowest toxicity of the wines.

The distilled beverages, whiskey, gin and brandy, were conspicuously less poisonous in both sets of experiments than either the wines or malt beverages. This is probably due to the fact that in the distilling process of their manufacture the volatile substances are separated from the non-volatile and perhaps toxic materials and are subsequently used in the making of the liquors. These distilled liquors approached the point of toxicity of absolute alcohol which was the least poisonous of all the alcoholic solutions used. Because of its purity it served as a control with which all the other beverages can be compared.

In a comparison it is readily seen that the wines are the most toxic, the malt liquors stand second in point of toxicity, and lastly the distilled liquors are the least toxic of all the beverages and approach nearest to the toxicity of absolute alcohol.

The value of these experiments is to show again that in the three main kinds of alcoholic beverages there are other important toxic ingredients than ethyl alcohol and also to demonstrate that the various alcoholic liquors when reduced to the same percentage of alcohol differ widely in their point of toxicity.

The results perhaps explain why different alcoholic beverages have such different effects upon the drunkard even though an equal intoxication is produced. It is generally recognized that brandy produces a certain type of drunkenness and that cider produces another type differing widely from the brandy type. Many of the other liquors also produce a particular type of drunkenness the characteristics of which are typical for each liquor. These types of drunkenness are doubtless partly caused, at least, by the non-alcoholic ingredients in the liquors.

D. D. WHITNEY

WESLEYAN UNIVERSITY,
MIDDLETOWN, CONN.,
February 28, 1911

BIOLOGICAL SOCIETY OF THE PACIFIC COAST

THE first meeting of a new society for Pacific coast biologists was held on April 1 at Berkeley, California. An afternoon meeting, at which papers were presented by President Jordan and Professor Zinsser, of Stanford University, and Professors Kofoid and Maxwell, of the University of California, was followed by a dinner at the Hotel Shattuck, and by participation, in the evening, in a joint general public meeting of the newly organized Pacific Coast Association of Scientific Societies. At this meeting addresses were made by Presidents Wheeler and Jordan, of California and Stanford universities, Professor Kellogg, of Stanford University, and Mr. George Dickie, marine engineer, of San Francisco.

The Biological Society of the Pacific Coast begins with an active membership of seventy, representing California, Washington, Oregon, Arizona and Utah. Three meetings will be held each college year, of which one will be known as the annual meeting and will be held in conjunction with the meetings of the various other societies composing the Pacific Coast Association of Scientific Societies. The officers of the society for 1911–12 are: Professor Vernon L. Kellogg, president; Professor H. B. Torrey, secretary-treasurer, and Professor H. J. Maxwell, third member of the executive committee.

SOCIETIES AND ACADEMIES

THE HELMINTHOLOGICAL SOCIETY OF WASHINGTON

THE fourth regular meeting of the society was held at Dr. Stiles's residence on February 9, 1911, Dr. Stiles acting as host and Dr. Pfender as chairman.

Mr. Foster presented a note on a nematode from the stomach of the pig. This form had been provisionally identified as *Spiroptera strongylina*,

but the location of the vulva in the anterior portion of the body indicates that it is a new species or else that the available descriptions of the European *S. strongylina* are in error in describing the vulva as near the anus. *Spiroptera strongylina* has been reported from Texas in 1892 by Francis, who states that this species is common there but that the identification is doubtful, and from Kansas in 1910 by Kaupp, who figures the vulva as posterior. He may have so figured it as the result of an error of interpretation. Specimens in the helminthological collection of the Bureau of Animal Industry were collected by Kilborne as early as 1884. These specimens show the vulva in the anterior portion of the body. The European species is usually described as having a smooth mouth, though von Linstow notes six round papillæ. The American species has two lips and six long papillæ. There are other differences in the ratio of the length of the large and small spicules.

The worm occurs half buried in the mucosa of the stomach and is therefore a dangerous parasite. Von Ratz in 1897 reported an epizootic due to *Spiroptera strongylina*, in which a number of pigs were seriously affected and some killed. The parasite caused sloughing of the gastric mucosa and it is probable that the American species does the same. It is therefore of some economic importance.

Associated with the American *Spiroptera* were specimens of *Physocephalus sexalatus*, recorded here for the first time from the United States. This is also the first record of its occurrence in the domestic pig. Former records are from the peccary and the wild boar.

Dr. Goldberger presented a note on some trematodes of fish. The œsophagus presents a notable peculiarity. It is ordinarily described as ending at the fork where the intestinal ceca begin. In some forms there is said to be no œsophagus present. This statement is due to a failure to take into account a structure that is a part of the ceca though it really belongs to the œsophagus. This structure is limited posteriorly by a constriction or sphincter, and is really a forked œsophagus, extending from the pharynx to this constriction. This structure he has noted in the genus *Azygia* and in *Leuceruthrus*.

Dr. Goldberger also presented a note on a trematode from a black snake. In this trematode (*Styphlodora bascaniensis*) Laurer's canal does not go to the dorsum and open to the exterior, but ends in a globular swelling containing cells like vitelline cells and some other structures interpreted as spermatozoa. The worm has a well developed sperm receptacle. *Aspidogaster conchicola* has been described as having a similar form of Laurer's canal.

In discussing Dr. Goldberger's paper, Dr. Stiles called attention to the fact that in 1894 he had stated in a paper on *Fasciola magna* that the egg shell was probably formed by the vitellogene glands rather than by the so-called shell glands. A paper by Goldschmidt in 1909 has given in detail the formation of the egg shell, his conclusions being somewhat similar to those of Stiles in 1894. Dr. Ransom stated that he had come to the same conclusion regarding the shell gland of certain bird tapeworms. He had thought that possibly the walls of the uterus were partly responsible for shell formation as shells were found only after the eggs had been in the uterus for some time.

Mr. Hall presented a paper entitled "The Need and Desirability of a Biological Survey of the Parasite Fauna of the United States." The amount of data relative to the occurrence, distribution, habits and importance of the animal parasites of the United States is very small. There are few persons who collect material or contribute notes in this field of investigation. The large amount of material in the government laboratories at Washington has been largely collected at Washington and at the slaughter-houses at big packing centers, and in these cases there is often little data as to the localities where infections were acquired.

As a preliminary to a biological survey of our parasite fauna, statements as to the occurrence and distribution of our more important parasites, so far as the occurrence and distribution is known, should be made. Such a statement would furnish incentive for additional records, as it is easier to refer to such a record and add to it than to look through our present scattered records, many of which are not available to most persons. Conversely, such a record would serve as a guide in looking for parasites. As an illustration of the utility of such a survey, it may be noted that the preliminary work on the hookworm made it possible for physicians to add intelligently to the records, thus mapping out the infected areas. Conversely, it led physicians to look for the hookworm in those states from which it was recorded or where the records indicated that it would be found, for such records indicate possibilities and probabilities in addition to showing known facts.

Such records indicate foci of infection and awaken the interest of persons resident at such foci. They are essential in campaigns of eradication. A study of the distribution, habits and importance of some of our animal parasites may throw light on life histories by indicating a corresponding distribution of intermediate hosts or of other conditions requisite for the life cycle. This would permit of outlining more adequate means of prophylaxis, would make possible more intelligent estimates of the economic importance of our parasites, and would aid in guarding against indigenous and imported species. With such preliminary compilations of records as a nucleus, it should be possible in time to proceed to a real biological survey of our parasite fauna.

Dr. Ransom presented a note on the viability of nematode eggs and larvæ. In some species there is a great difference between the viability of eggs or newly hatched embryos and that of the full-grown larvæ. The first two are quickly killed by low temperatures or drying, but the ensheathed larvæ can be frozen for some time, or frozen and thawed alternately without damage. Of two cultures of ensheathed larvæ, one of which was kept out of doors during the winter and the other indoors, the former was found in the better condition at the end of the winter. The probable explanation is that low temperature inhibits activity and in this way conserves the food supply stored up in the intestinal cells of the larvæ. The ensheathed larvæ can also be dried for some time and then revived by the addition of moisture.

Nematodirus filicollis develops to the ensheathed stage before hatching, a period of about a month being required for the development at a temperature of about 70° Fahrenheit, whereas under similar conditions the stomach worm (*Hæmonchus contortus*) hatches in about two days, and does not develop to the ensheathed stage until after hatching. The eggs of *Nematodirus* are much more resistant to low temperatures than those of the stomach worm. A temperature of 12° Fahrenheit was found to kill eggs of the stomach worm in seven to ten days, while eggs of *Nematodirus* were viable at the end of eight weeks after exposure to the same temperature. At 32° to 40°, eggs of the stomach worm were still alive at the end of eight weeks, but were dead after thirteen weeks. The eggs and embryos of *Strongyloides* do not resist drying. In this genus the embryos do not ensheath.

Dr. Stiles presented a note on the progress of the hookworm work in this country, and noted the finding by Stiles and Miller, on the basis of microscopic diagnosis, of cases of hookworm disease in Kentucky. He exhibited maps showing all the counties known to be infected.

MAURICE C. HALL,
Secretary

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

THE 453d regular meeting of the society was held in the hall of the Public Library, March 28, 1911, 8:00 P.M., with Mr. George R. Stetson, vice-president of the society, in the chair.

Professor R. B. Dixon, of Harvard University, read a paper on "Polynesian Mythology." After a geographical survey of the islands of the Pacific, including Polynesia, Melanesia, Micronesia and Malasia, the speaker gave a delineation of the pantheon and a concise exposition of the theology entertained, with greater or lesser variations, by the different tribes of these islands. The gods are broadly divided into greater and lesser ones. In addition to these there are ancestral and totemic deities. The four great gods are: Tane (dialectically, Kane), Tu (Ku), Tangaroa (Tanaloa) and Rongo (Lono, also Oro). The lesser gods are for the most part considered as their offspring. Of the four great gods Tane is the greatest. He is conceived as self-evolved, existing from eternity, the father of men, and is connected with the sky. He is supreme in the Hawaiian Islands and New Zealand, although he had there no temples and scarcely received any worship, while in Samoa and central Polynesia at large he is almost unknown. The same is the case with Rongo, the god of agriculture, and Tu, the god of war. On the other hand, Tangaroa, who forms a group by himself, enjoyed great honor in Samoa and the central portion of Polynesia, but was associated with darkness and evil in Hawaii and seems to be a late comer into Hawaii, imported from Tahiti or the Marquesas Islands. There are, as a rule, no images made of the great gods. The only representations made of them are stone pillars or wooden poles swathed in tappa or mats. The mythology of the other islands of the Pacific Ocean, as that of Melanesia, Micronesia, agrees in some portions with that of Hawaii and New Zealand, in others with that of Samoa and central Polynesia.

The paper was discussed and commented upon by many of those present.

I. M. CASANOWICZ,
Secretary